

New Aberrations of *Callimorpha jacobaeae* Linn. (Lep. Arctidae)

By R. W. WATSON, F.B.A.A., F.A., F.C.C.S., F.Comm.A., F.R.E.S.

Description:

Callimorpha jachbaeae ab. *flavarosea* ab. nov.

Forewings buff yellow suffused with pale vermilion with the usual costal streak and spots of vermilion.

Hindwings buff yellow suffused with a rosy tint which follows the veins in many specimens.

Fringes buff yellow with variable amount of black scaling. Thorax and abdomen vermilion suffused with black. This is a very beautiful form, some of them resembling rose petals.

Type, Male bred 10th June 1967, Watson Collection.

Callimorpha jacobaeae ab. *nigrociliata* ab. nov.

Fore and hindwings crimson with the usual costal streak and spots of a darker shade. Fringes mainly black. Thorax and abdomen crimson, heavily suffused with black.

Type, Female bred 16th June 1967, Watson Collection.

Callimorpha jacobaeae ab. *pallida* ab. nov.

Forewings very pale vermilion with the costal streak and spots only just visible. Hindwings pale rose pink. Fringes buff with a little grey scaling. Thorax and abdomen pale vermilion suffused with greyish buff.

Type, Male bred 18th June 1967, Watson Collection.

Callimorpha jacobaeae ab. *rubrasuffusa* ab. nov.

Fore and hindwings as typical forms suffused with rusty vermilion so that although all typical markings remain, this form has the appearance of being overlaid with additional scaling.

Fringes greyish black. Thorax and abdomen dull vermilion suffused with greyish black.

Type, Female, June 7th, 1967, Watson Collection.

BREEDING RESULTS

The pupae from 1966 were divided as follows

Brood Numbers

| | Brood 1 | Brood 2 | Brood 3 | Brood 4 | Brood 5 | Brood 6 | Total |
|------------------------------|---------|---------|---------|---------|---------|---------|-------|
| Watson | 75 | — | 240 | 83 | 79 | 62 | |
| Coney | — | — | — | — | 52 | 46 | |
| Kettlewell | 6 | 5 | 6 | — | 6 | 6 | |
| Totals from pupae 1966 | 81 | 5 | 246 | 83 | 137 | 114 | 666 |

ANALYSIS OF EMERGENCES

| | Typical forms | <i>coneyi</i> | <i>intermedia</i> | <i>flavarozea</i> | <i>nigro-fimbriata</i> | <i>nigro-nigrociliata</i> | <i>pallida</i> | <i>rubra-suffusa</i> | Trans. to <i>rubrasuffusa</i> | Failed | Total |
|---------------------|---------------|---------------|-------------------|-------------------|------------------------|---------------------------|----------------|----------------------|-------------------------------|--------|-------|
| Brood 1 | | | | | | | | | | | |
| <i>intermedia</i> ♂ | 22 | 20 | 25 | — | — | — | — | — | — | 14 | 81 |
| <i>coneyi</i> ♀ | | | | | | | | | | | |
| Brood 2 | | | | | | | | | | | |
| Type ♂ | 2 | — | — | — | — | — | — | — | — | 3 | 5 |
| Type ♀ | | | | | | | | | | | |
| Brood 3 | | | | | | | | | | | |
| Wild type ♂ | | | | | | | | | | | |
| ex Boldre | 107 | 25 | 25 | 60 | — | — | — | — | — | 29 | 246 |
| <i>intermedia</i> ♀ | | | | | | | | | | | |
| Brood 4 | | | | | | | | | | | |
| Type ♂ | 48 | — | — | — | — | — | — | — | — | 35 | 83 |
| Type ♀ | | | | | | | | | | | |
| Brood 5 | | | | | | | | | | | |
| <i>coneyi</i> ♂ | 54 | 4 | 20 | — | — | — | 1 | 5 | 19 | 34 | 137 |
| Type ♀ | | | | | | | | | | | |
| Brood 6 | | | | | | | | | | | |
| <i>intermedia</i> ♂ | 54 | — | 8 | — | 1 | 10 | — | — | — | 41 | 114 |
| Wild type ♀ | | | | | | | | | | | |
| ex Milborne | | | | | | | | | | | |
| Port | | | | | | | | | | | |
| | 287 | 49 | 78 | 60 | 1 | 10 | 1 | 5 | 19 | 156 | 666 |

GENETICS:

I considered the original female *coneyi* taken in 1965 must be a dominant as if it had been a recessive the chances of a pairing in the wild to produce the results shown below in the first brood were too remote.

| | | | |
|-----|------|-------|----------------------------|
| Red | Type | Total | Percentage of red to total |
| 14 | 16 | 30 | 46.7% |

On the assumption that the red form was a dominant the expected and actual results are shown in the following table:

Percentage of "red" *jacobæae* to total emergences

| Brood No. | | Expected | Actual |
|-----------|---------------------------------------|----------|--------|
| 1 | <i>intermedia</i> ♂ × <i>coneyi</i> ♀ | 75% | 67.2% |
| 2 | Typical ♂ × typical ♀ | nil | nil |
| 3 | Wild typical ♂ × <i>intermedia</i> ♀ | 50% | 50.7% |
| 4 | Typical ♂ × typical ♀ | nil | nil |
| 5 | <i>coneyi</i> ♂ × typical ♀ | 50% | 47.6% |
| 6 | <i>intermedia</i> ♂ × wild typical ♀ | 50% | 26% |

This proves that "red" *jacobæae* is a dominant, the variation in ground colour, fringes, etc., being doubtless the effect of modifying genes.

On June 30, 1967, a male ab. *intermedia* was taken within 400 yards of the place of capture in 1965 of the original ab. *coneyi* female. This male was paired by A. W. Coney with an ab. *coneyi* female.

In the case of ab. *rubrasuffusa*, however, further results are necessary as these forms only occurred in brood 5. This is probably a recessive which may only be able to express itself in the presence of the "red" gene.

At the time of writing, some 1200 pupae are due to emerge shortly. It is hoped eventually to obtain pairings with the yellow recessive form.

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All the helpers with the mundane tasks of collecting ragwort, cleaning out cages, etc., under the supervision of Mrs. M. B. Watson, F.R.E.S.

"Porcorum", Sandy Down, Boldre, nr. Lymington, Hants,
 May 1968.

Notes on Breeding *Callimorpha jacobæae* Linn. (Lep. Arctidae)

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This species is one which although easy to breed has not in the past been given to much variation except for occasional broods of the yellow recessive form. I have bred small numbers in the past without difficulty, the larvae being healthy and not in my experience much affected by virus diseases.